
Communicating with the Meridian 1

To communicate with the system, the following input/output devices at either on-site (local) or remote locations are required:

- TTY or VDT terminal as an input/output device
- RS-232-C compatible printer as an output only device
- Meridian SL-1 maintenance telephone set as an input only device

The input/output system can operate with terminals having the following characteristics:

- Interface: RS-232-C
- Code: ASCII
- Speed: 110, 300, 1200, 2400, 4800, and 9600 baud
- Loop Current: 20 mA

Accessing the Meridian 1

Logging in and out

When you access the system through a system terminal, a login procedure is required (refer to Procedure 1). All system passwords are initially set as 0000, but you can change passwords through the Configuration Record (LD 17). See also “Limited Access to Overlays” in the *X11 features and services* NTP.

Level 1 password. This general password is used in the log in sequence to provide general access to the system by service personnel. Once the system is accessed, the service personnel may then perform any necessary administration or maintenance tasks.

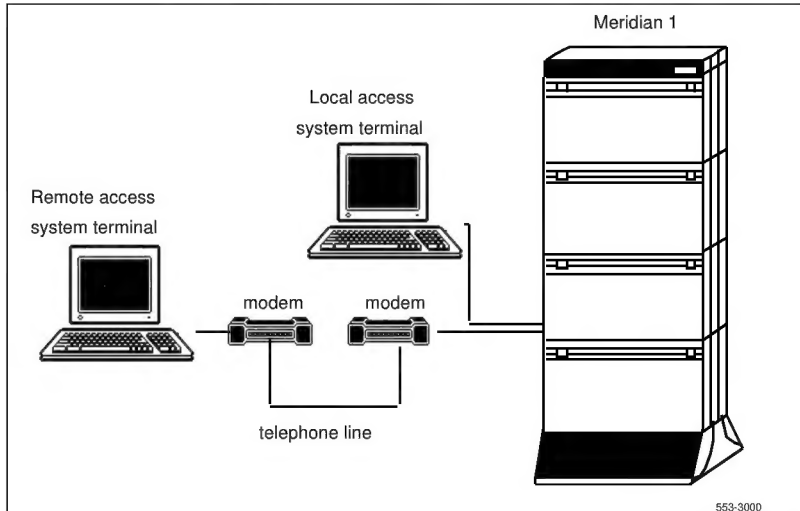
Level 2 password. This administrative password is known and used only by the data administration manager. The password is used to protect the system configuration record and is required when using LD 17 to change either the general or the administrative passwords.

Local and remote access

Input/output terminals may operate either locally or remotely. However, data modems are required for terminals located more than 50 feet (15 meters) from the central control interface. Both local and remote terminals interface with the system through Serial Data Interface (SDI) packs.

Many devices can be installed at local and remote locations. When a system terminal is installed locally, it is connected directly to a SDI Card. When a system terminal is installed at a remote location, modems (or data sets) and a telephone line are required between the terminal and the SDI card. Figure 1 : Local and remote access to a system terminal shows typical system terminal configurations.

With X11 release 19 and later, multiple devices can simultaneously communicate with the Meridian 1 if Multi User Login is enabled. Refer to the *X11 system management applications* NTP for details regarding the Multi User Login Feature. Prior to Release 19, only one device at a time could interact with the Meridian 1.

Figure 1: Local and remote access to a system terminal

HOST mode access

A system terminal is connected through an SDI port. SDI ports are defined in LD 17 and may be configured for different types of outputs. For example, one terminal may be defined for traffic reports, another for maintenance messages. Two ports may be defined for the same output; however, prior to X11 release 17, both ports operate at the speed of the slowest port.

In X11 release 17, it is possible to log in as a HOST. When in the HOST mode, the outputs defined for the port are only output to that port. Thus the port is no longer limited to the speed of the slowest port sharing the output types. This is useful for applications, such as Meridian Manager, which require high speed ports. Once the HOST port has logged out, the outputs to the other ports are restored.

To configure a system terminal, see the “System and limited access passwords” in the configuration record (LD 17). See also OVL403 and OVL404 messages, which are output to the ports affected by a HOST log in.

Line mode interface log in procedure

X11 release 18 introduces Line Mode interface. With Line Mode enabled (LON), the backspace can be used to edit input. The entered information (responses, for example) is not processed until the <CR> is entered. When the Line Mode is disabled (LOF), the system terminal interface operates as it did prior to X11 release 18.

Procedure 1: Logging in and out

1 Press <cr>

— If the response is : **OVL111 nn TTY** or **OVL111 nn SL-1**

That means: Someone else is logged into the system. When they have logged off, press <cr> and go to Step 2.

— If the response is : **OVL111 nn IDLE** or **OVL111 nn BKGD**

That means: You are ready to log into the system. Go to Step 2.

— If the response is: **OVL000 >**

That means: This is the program identifier which indicates that you are have already logged into the system. Go to Step 4.

2 Enter : **LOGI**, then press <cr>

The normal response is : **PASS?**

If there is any other response, refer to the message text in the System Error Messages NTP.

3 Enter : **Level 1 or Level 2 password** and press <cr>.

If the password is correct, the system responds with the prompt: >

4 Load a program by entering : **LD XX** (where XX represents the overlay program number). For X11 release 18 and later, use LD 135 or LD 137 (LD xxx) to load an overlay program or **LD XX D**.

5 Perform tasks

6 End the program by entering : **END** or ********

7. Always end the log in session with : **LOGO**

The background routines are then loaded automatically.

Access through the maintenance telephone

A telephone functions as a maintenance telephone when you define the class-of-service as MTA (maintenance telephone allowed) in the Multi-line Telephone Administration program (LD 11). A maintenance telephone allows you to send commands to the system, but you can only use a subset of the commands that can be entered from a system terminal.

You can test tones and outpulsing through the maintenance telephone. Specific commands for those tests are given in the Tone and Digit Switch and Digitone Receiver Diagnostic (LD 34).

To access the system using the maintenance telephone, see Procedure 2. To enter commands, press the keys that correspond to the letters and numbers of the command (for example, to enter LD 42 return, key in 53#42##). Table 2 shows the translation from a keyboard to a dial pad.

The following overlays (LDs) ARE accessible from a maintenance telephone: 30, 32, 33, 34, 35, 36, 37, 38, 41, 42, 43, 45, 46, 60, 61, and 62

The following overlays (LDs) ARE NOT accessible from a maintenance telephone: 31, 40, 48, 77, 80, 92, 96, 135, 137

Note: To use the maintenance telephone, the loop for that telephone must be operating.

Table 2 : Translation from keyboard to dial pad

Keyboard				Dial pad
			1	1
A	B	C	2	2
D	E	F	3	3
G	H	I	4	4
J	K	L	5	5
M	N	O	6	6
P	R	S	7	7
T	U	V	8	8
W	X	Y	9	9
			0	0
			Space or #	#
			Return	##
			*	*
Note: There is no equivalent for Q or Z on a dial pad.				

Procedure 2: Access through the maintenance telephone

- 1** Press the prime DN key.
- 2** Place the set in maintenance mode by entering : **xxxx91**

Where: "xxxx" is the customer Special Prefix (SPRE) number. It is defined in the Customer Data Block and can be printed using LD 21. The SPRE number is typically "1" (which means you would enter 191).
- 3** Check for busy tone by entering "return" : **##**
 - If there is no busy tone, go to Step 4.
 - If there is a busy tone, a program is active. To end an active program and access the system enter : ********
- 4** Load a program by entering : **53#xx##**

Where : "xx" represents the number of the overlay program
- 5** Perform tasks.
- 6** To exit the program and return the telephone to call processing mode, enter : ********

Background routines are then loaded automatically.

Accessing Meridian Mail

Option 11 allows access to Meridian Mail Administration & Maintenance through a shared terminal on the Option 11. To access the Meridian Mail system, log in and enter: AX. To exit from Meridian Mail, press the Control key and the closed square bracket (**]**) simultaneously.

System memory and disk space

The following memory information is output when an administration program is loaded. This information is used to plan the addition of new features, such as speed call lists, which require memory and disk space.

NT, RT, XT, 51, 61, 71, 81 systems

MEM AVAIL: (U/P): pppppp USED: qqqqqq TOT: rrrrr

or (depending on the total amount of memory)

MEM AVAIL: (U-ppppp1 P-ppppp2): USED: qqqqqq TOT: rrrrr

ST, 21, STE, 21E systems

UDATA: ppppp1 PDATA: ppppp2

X11 release 17 (for all systems)

DISK RECS AVAIL: xxxxx

Legend :

Element	Definition
ppppp1	Amount of unprotected memory available for use (in words)
ppppp2	Amount of protected memory available for use (in words)
ppppp	Total memory available for use (ppppp1 + ppppp2) (in words)
qqqqq	Total amount of memory used (in words)
rrrrr	Total amount of memory (in words)
xxxxx	Floppy disk records available for storage of additional data

Low memory and disk warnings

If the amount of memory or disk space is low, the following messages are output on the RT, NT, XT, 51, 61, 71, and 81 systems.

WARNING: LOW MEMORY

WARNING: LOW DISK

WARNING: LOW MEMORY/DISK

When these messages appear, (or when the DISK RECS is less than 5, and/or the available memory is less than 1K words on the ST, STE, 21, or 21E), avoid performing further administration changes which require more memory and disk space. These changes may be lost during the next data dump.

When low memory or disk problems occur, a review of system memory is recommended. Memory may be reclaimed by removing unused features. For example, the system may have speed call lists which are no longer used and can be removed.

The low disk warning only occurs in release 17 and later. In addition, the Speed Call List program (LD 18) has been enhanced to provide a method of computing the memory and disk requirements of new lists.

A disk record stores approximately 500 words of protected data store. The number of disk records depends on the type of floppy disk used:

- 3.5 inch high density floppy = maximum of 1425 records
- 3.5 super density = maximum of 2850 records
- 5.25 inch floppy = maximum of 1140 records

Note 1: Be sure the correct floppy type is defined. See prompts ADAN and FTYP in LD 17. This does not apply to the Option 81.

Note 2: These messages are not output after sysload until a data dump is done.

Note 3: These messages are not output for 21, 21E, ST, or STE systems. In these systems, avoid performing additional changes when disk records available is below 5, or memory available is below 1K.

Preview of overlay content

System information, call information, features and services are all controlled by overlays (LDs). Data blocks are used to control this information. Listed below are some of the items accessible through the overlays.

Type	Overlay(s)	Item
Terminal Number data block	10, 11, 12, 14	busy lamp field Class of Service (CLS) feature access and requirements key assignments route assignment telephone features (# of key strips, data modules) telephone type trunk access trunk type
Customer data block	15	attendant console information customer number feature access codes incoming call identification intercept options Listed Directory Number (LDN) night service Recorded Announcement (RAN)
Route data block	16	access codes Call Detail Recording (CDR) information code restrictions network trunk features route number trunk route type trunking features (timers, starting arrangements)
Configuration data block	17	input/output devices memory location network loop usage number of memory modules number of network loops system parameters (call register, buffer sizes, traffic)

System Look up Messages

On Option 51C, 61C, 81, or 81C systems equipped with System Errors and Events Lookup package 245, it is possible to display system messages on screen. System messages must first be loaded into the switch by entering ERR <cr>. Specific system messages may then be viewed on screen if the user enters the desired system error code and <cr>. The following example shows the data entries necessary to view error message: SCH946.

- | | | |
|---|-----------------|--|
| 1 | Login to switch | |
| 2 | PASS | (Enter only your password) |
| 3 | ERR <cr> | (The user must type "ERR" and press return) |
| 4 | SCH946 <cr> | (The user must type "SCH946" and press return) |

The screen will now display the error message corresponding to SCH946. In this case, that message is:

Invalid User Type

Multi-User Login

Meridian 1 Multi-User Login (MULTI_USER) (package 242) enables up to three users to log in, load, and execute overlays simultaneously. These three users are in addition to an attendant console or maintenance terminal. The multi-user capability increases the efficiency of craftspersons by enabling them to perform tasks in parallel. To facilitate this operating environment, Multi-User Login includes significant functionality:

- Database conflict prevention
- Additional user commands
- TTY log files
- TTY directed I/O

With multiple overlays operating concurrently, there is the potential for a database conflict if two or more overlays attempt to modify the same data structure. Multi-User Login software prevents such conflicts. When a user requests that an overlay be loaded, the software determines if it could pose a potential conflict with an overlay that is already executing. If no conflict exists, the requested overlay is loaded. If a conflict does exist, the system issues the following message:

OVL429-OVERLAY CONFLICT

The user can try again later, or try to load a different overlay.

Multi-User Login also introduces several new user commands. With these commands, the user has the ability to:

- communicate with other users
- determine who is logged into the system
- halt and resume background and midnight routines
- initiate and terminate terminal monitoring
- change printer output assignment

Changes for X11 release 22 and later

Prior to X11 release 22, the number of Meridian 1 users allowed to login at the same time was three. For X11 release 22, this number is increased to five. A second change has also occurred in X11 release 22. Multiuser capability is now extended to LD 2 and LD 87.

User commands

A user can issue any of the commands listed and described in Table 3, “New user commands,” on page 18 at the > prompt (after login but with no overlay executing), or from within an overlay. To issue a command from within an overlay, precede the command with an exclamation point (!).

For example, to issue the WHO command from within an overlay, type:

!WHO

Table 3
New user commands

Command	Description
WHO	Displays user name, port ID, and overlay loaded for each logged-in terminal, as well as the user's MON and SPRT commands (see below).
SEND xx	Sends a message to logged-in terminal xx. When the system responds with a " SEND MSG: " prompt, enter the message text yy...yy (up to 80 characters). The text of a message is considered private and therefore is not written to any log file.
SEND ALL	Sends a message to all logged-in terminals. When the system responds with a " SEND MSG: " prompt, enter the message text yy...yy (up to 80 characters). The text of a message is considered private and therefore is not written to any log file.
SEND OFF	Prevents messages sent by other terminals from appearing at the user's terminal.
SEND ON	Enables messages sent by other terminals to appear at the user's terminal.
FORC xx	Forces terminal xx to log off (the requesting user must log in with LAPW or a level 2 password).
HALT	Stops background and midnight routines during a login session.
HALT OFF	Resumes halted background and midnight routines.
MON xx	Initiates monitoring for terminal xx (the requesting user must log in with LAPW or a level 2 password). The monitored terminal receives a message at the beginning and end of the monitored period.
MON OFF	Turns off the monitor function.
SPRT xx	Assigns printer output to port xx.
SPRT OFF	Resets printer output assignment.

For more information on Multi-User Login, consult the *Management Applications NTP*.

Time and date of fault

The system identifies the time that faults are detected. When a diagnostic message is output, a timestamp is output within 15 minutes. The format is:

TIMxxx hh:mm dd/mm/yy CPU x

Where: **xxx** is the system ID

The time, date, and system ID are set in LD 2.
